

REMARKS

Claims 1, 3-10, 12-19, 21-31 and 33-45 are pending in this application. By this Amendment, claims 1, 3, 4, 10, 12, 13, 19, 21, 22, 28-31, 33-35, 41 and 42 are amended and claims 43-45 are added. The claim amendments and added claims introduce no new matter. Claims 43-45 read on elected Species B. A Request for Continued Examination is attached. Reconsideration of the application based on the above amendments and the following remarks is respectfully requested.

The Office Action maintains the finality of the February 28, 2007 Election of Species Requirement, in response to which Applicants provisionally elected Species B, with traverse. Applicants asserted that claims 10-18, 29, 31-37 and 39 were readable on the elected species. Applicants further argued in the September 14, 2007 Amendment, that at least claims 36, 37, 41 and 42 were generic to all species. Applicants respectfully request rejoinder of the non-elected claims upon allowance of any generic claim.

The Office Action, in paragraph 3, objects to claims 13 and 35 for informalities. The Office Action asserts that the phrase "polarization direction of the signal light beam and a polarization direction of the reference light beam at the time of newly recording each page of the hologram are orthogonal to each other" is confusing and indefinite. Without conceding the propriety of this rejection, and solely to advance prosecution of this application, claims 12 and 34, from which claims 13 and 35, respectively, depend, are amended to recite, among other features, the optical recording medium comprises a material having photoinduced birefringence. Applicants discuss at least at page 20, line 14 - page 22, line 7 of the specification how recording with orthogonal polarized signal light and reference light beams is possible using a material having photoinduced birefringence. As such, one of ordinary skill in the art would have understood how the features recited in claims 13 and 35 function in the

context of an optical recording medium that comprises a material having photoinduced birefringence, as recited in claims 12 and 34. Reconsideration and withdrawal of the objection is respectfully requested.

The Office Action, in paragraph 2, rejects claims 31 and 33-35 under 35 U.S.C. §112, first paragraph, as allegedly failing to comply with the enablement requirement. Specifically, the Office Action asserts that it is not clear where a reproduced light beam comes from or how the reproduced light beam could be used before a hologram is recorded. The Office Action further asserts that it is allegedly impossible to have a recording position where each page with the hologram is newly recorded in a position where a light beam intensity of the reproduced light beam from each page of the hologram previously recorded in the optical recording medium is minimized. Without conceding the propriety of this rejection, and solely to advance prosecution of this application, claim 31 is amended to recite, among other features, (1) a detector which obtains a reproduced light from the recording medium and detects a light beam intensity of the reproduced light, and (2) a signal supplying device which supplies the recording signal for a new hologram to the spatial light modulator so that the new hologram is recorded in a state where the light beam intensity of the reproduced light beam from each page of a plurality of pages of the hologram which has been previously recorded in the optical recording medium is minimized. Support for these amendments can be found at at least page 13, lines 13-20, page 9, lines 10-24, and Fig. 5, of the specification where Applicants disclose detecting a reproduced light and the feasibility of having a recording position where each page of the hologram is newly recorded in a position where a light beam intensity of the reproduced light beam from each page of the hologram previously recorded in the optical recording medium is minimized. As such, one of ordinary skill in the art would have understood that Applicants had possession of and would have been able to make and use the subject matter recited in the pending claims without undue experimentation.

The Office Action, in paragraph 11, rejects claims 10, 29, 31, 41 and 42 under the doctrine of nonstatutory obviousness-type double patenting over claim 4 of U.S. Patent No. 7,218,597. In the September 14 Amendment, Applicants submitted a Terminal Disclaimer to obviate this rejection. Applicants respectfully request acknowledgement of the September 14 Terminal Disclaimer and withdrawal of the rejection.

The Office Action, in paragraph 5, rejects claims 10, 14, 29, 31, 41 and 42 under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 6,301,028 B1 to Tanaka et al. (hereinafter "Tanaka"). The Office Action, in paragraph 6, rejects claims 10, 12, 29, 31, 34, 41 and 42 under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,721,076 B2 to King et al. (hereinafter "King"). The Office Action, in paragraph 8, rejects claims 13, 33 and 35 under 35 U.S.C. §103(a) as being unpatentable over King. The Office Action, in paragraph 9, rejects claims 15-18 under 35 U.S.C. §103(a) as being unpatentable over King in view of U.S. Patent No. 7,129,006 to Hesselink et al. (hereinafter "Hesselink"). These rejections are respectfully traversed.

Without conceding the propriety of these rejections, and solely to advance prosecution of this application, claim 31 is amended to recite, among other features, a detector which obtains a reproduced light from the recording medium and detects a light beam intensity of the reproduced light, and a signal supplying device which supplies the recording signal for a new hologram to the spatial light modulator so that the new hologram is recorded in a state where the light beam intensity of the reproduced light beam from each page of a plurality of pages of the hologram which has been previously recorded in the optical recording medium is minimized. Claims 41 and 42 recite similar features. Neither Tanaka nor King teach, nor can they reasonably be considered to have suggested, these features.

For example, the applied references do not disclose a detector which obtains a reproduced light from the recording medium and detects a light beam intensity of the

reproduced light. Tanaka teaches a recording and reproducing apparatus capable of recording interference patterns in volume holographic memory at a high density (col. 2, lines 58-62). Tanaka further teaches gauging the intensity distribution of the signal light beam (Figs. 3-8). Tanaka, however, does not detect any alleged reproduced light from the recording medium or detect a light beam intensity of the alleged reproduced light. King teaches recording successive holograms in a recording medium (Abstract). King further teaches reconstructing a previously recorded hologram using a reference beam which is a phase conjugate of the recording reference beam during readout (col. 15, lines 65-68). King, however, does not teach detecting a light beam intensity of the reproduced light. In this regard, King merely reads a recorded hologram for reading out data.

As another example, the applied references do not disclose the new hologram is recorded in a state where the light beam intensity of the reproduced light beam from each page of a plurality of pages of the hologram which has been previously recorded in the optical recording medium is minimized. The Office Action, in the Response to Arguments, asserts, with respect to previously recited features, that allegedly because the locations of the holograms for the data pages are spatially different, an alleged reproduced hologram in Tanaka and King would also be at spatially different locations and the intensity for each diffraction light beam from each hologram would therefore be minimized at the positions other than the recording location of the hologram. Tanaka teaches a moving portion for shifting the center of a region of the holographic memory in which the signal light beam and the reference light beam intersect according to the distance between peaks of the zeroth-order and first-order diffracted light (col. 3, lines 24-30). King teaches, with reference to Fig. 1, a moving assembly 185 to achieve shift multiplexing with respect to signal and reference beams according to a displacement δ (col. 10, lines 49-64). King teaches that successive holograms are recorded by translating the multi-layer holographic storage medium reference and object

beam along a shift multiplex direction, where the reference beam and object beam are propagated to successive areas of the photo recording medium (col. 3, lines 61-64). Even under the Office Action's interpretation, based on the disclosures of Tanaka and King, it is unreasonable to assert that the applied references would have suggested a new hologram is recorded in a state where the light beam intensity of the reproduced light beam from each page of a plurality of pages of the hologram which has been previously recorded in the optical recording medium is minimized, as recited in claim 31.

Further, the Office Action, in the Response to Arguments, broadly asserts that because Tanaka and King allegedly disclose spatial multiplexing methods that by "definition and disclosure" this corresponds to the combination of features previously recited in claim 31. In this regard, the Office Action (1) fails to give the relevant claim features their plain meaning and broadest reasonable construction, particularly in light of Applicants' disclosure, (2) apparently concedes that the applied references do not explicitly teach these features, and (3) fails to establish that such features can be considered to be inherent in the references.

First, the Office Action does not apparently consider the separately recited feature of a reproduced light beam and previously recorded hologram in the context of the combination of features recited in the pending claims. As discussed above, the applied references do not teach the combination of these features.

Second, to the extent that the Examiner is asserting that the above-quoted features are inherently disclosed in the applied references, the Office Action fails to establish why or how these features would be inherent. In particular, the Office Action fails to show why these features would necessarily flow from the teachings of the prior art, a necessary precondition to establishing inherency. For example, it is unclear how or why the combination of specifically recited features in claims 31, 41 and 42 would necessarily flow from the alleged teaching of spatial multiplexing methods.

Hesselink is not applied in a manner by the Office Action to overcome the above-identified shortfalls in the application of Tanaka and King to the subject matter of the pending claims.

As discussed in detail above and argued in the September 14 Amendment, the subject matter of the pending claims is directed to overwriting (rewriting and recording) holograms without performing an erasing process as discussed at at least page 7, lines 8-13, of Applicants' specification. In this regard, new holograms can be reproduced with high quality even if a previously recorded hologram exists in substantially the same region. Since a new hologram is recorded when the diffraction light beam intensity of a previously recorded hologram is minimized, the new hologram can be recorded and reproduced with high quality without mixing (crosstalk) with a reproduced light beam from the recorded hologram as discussed at at least page 10, lines 14-19, and page 24, lines 18-22, of Applicants' specification. In contrast, the applied references are directed to only recording multiple holograms. Such holograms, according to the disclosures of the applied references, are not erased and recorded according to the combinations of features recited in the pending claims.

For at least the foregoing reasons, the applied references cannot reasonably be considered to teach, or to have suggested, the combinations of all of the features positively recited in claims independent claims 31, 41 and 42. Additionally, claims 10, 12-18, 29 and 33-35 are not taught, nor would they have been suggested, by the applied references for at least the respective dependence of these claims, directly or indirectly, on allowable base claims, as well as for the separately patentable subject matter that each of these claims recites.

Accordingly, reconsideration and withdrawal of the rejections of claims 10, 12-18, 29, 31, 33-35, 41 and 42 under 35 U.S.C. §§102(b), (e), and 103(a) as being anticipated by, or unpatentable over, the applied references are respectfully requested.

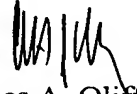
Additionally, added claims 43 and 45 recite wherein the signal supplying device supplies the recording signal for the new hologram so that the light beam intensity of the new

hologram is maximized in the state where the light beam intensity of the reproduced light beam from each page of the plurality of pages of the hologram which has been previously recorded in the optical recording medium is minimized. Claim 44 recites similar features. Support for these features can be found in Fig. 5 and at least pages 27 and 28. These features provide, among other objects, for a new hologram to be recorded such that summits of plural peaks (shown by a broken line in Fig. 5) appear at valleys of the previous plural peaks (shown by a solid line). The applied references do not teach, nor can they reasonably be considered to have suggested, these features. As such, claims 43-45 are also allowable.

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 10, 12-18, 29, 31, 33-35 and 41-45 in addition to rejoinder of claims 1, 3-9, 19, 21-28, 30 and 38-40 upon allowance of generic claims 36, 37, 41 and 42, are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



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JAO:CJW/clf

Attachment:

Request for Continued Examination
Amendment Transmittal

Date: February 29, 2008

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